

Microsymposium

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MacCHESS: Structural Biology at Cornell's High-Energy Synchrotron Source

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MacCHESS ("Macromolecular diffraction at CHESS") is an NIH funded facility at the Cornell High Energy Synchrotron Source; we provide a user facility with an exceptional level of support, as well as pursuing research to benefit the entire structural biology community. CRYSTALLOGRAPHY: High-flux monochromatic beamlines outfitted with state-of-the-art equipment are available. BSL-2 biohazards can be handled. Research activities include on-line confocal microscopy, working with multiple small crystals, use of graphene to reduce background, etc. BIOSAXS: A dedicated beamline features: a dual SAXS/WAXS setup using 2 Pilatus detectors; an integrated computer-controlled flow system including robotic sample loading from 96-well trays, custom-made disposable, transparent sample cells, and a convenient graphical interface; a well-equipped wet lab for sample monitoring and final preparation; an in-line SEC-MALS/DLS-SAXS option. Microfluidic "lab-on-a-chip" units are under development. Periodic workshops are held to educate users in the intricacies of BioSAXS. PRESSURE CRYOCOOLING: Cryocooling crystals under pressure reduces both cooling-induced degradation and the need for penetrating cryoprotectants, and can stabilize mobile ligands and possibly reaction intermediates. We offer pressure-cryocooling as a service to CHESS users, while continuing to develop the method. Several sample mounting techniques are now available, and the technique has promise for use with biological samples other than crystals. FMI: To request beamtime, fill out a simple on-line proposal form at <http://www.chess.cornell.edu>. Mail-in service is available, and remote data collection is supported for experienced crystallography users. We welcome a chance to collaborate on "non-standard" experiments. For more information, contact User Administrator Kathy Dedrick (kd73@cornell.edu).

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